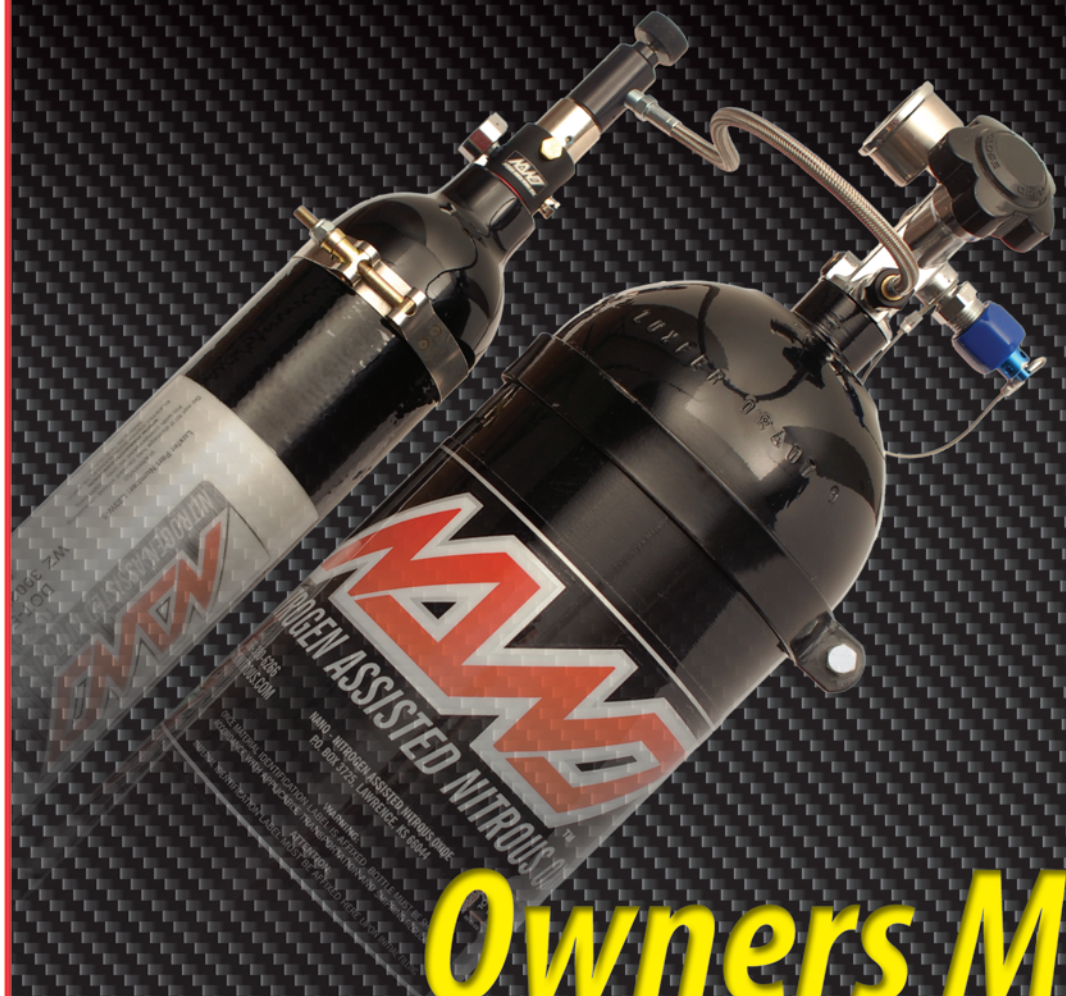
NITROGEN ASSISTED NITROUS OXIDE

NANO



Owners Manual

866 • 380 • 6266 nanonotrous.com

Congratulations – You have just purchased the most significant nitrous oxide racing technology available in over 50 years.

It is the purchaser's responsibility to follow all installation instruction guidelines and safety procedures supplied with the product as it is received by the purchaser to determine the compatibility of the product with the vehicle or device the purchaser intends to install this product on.

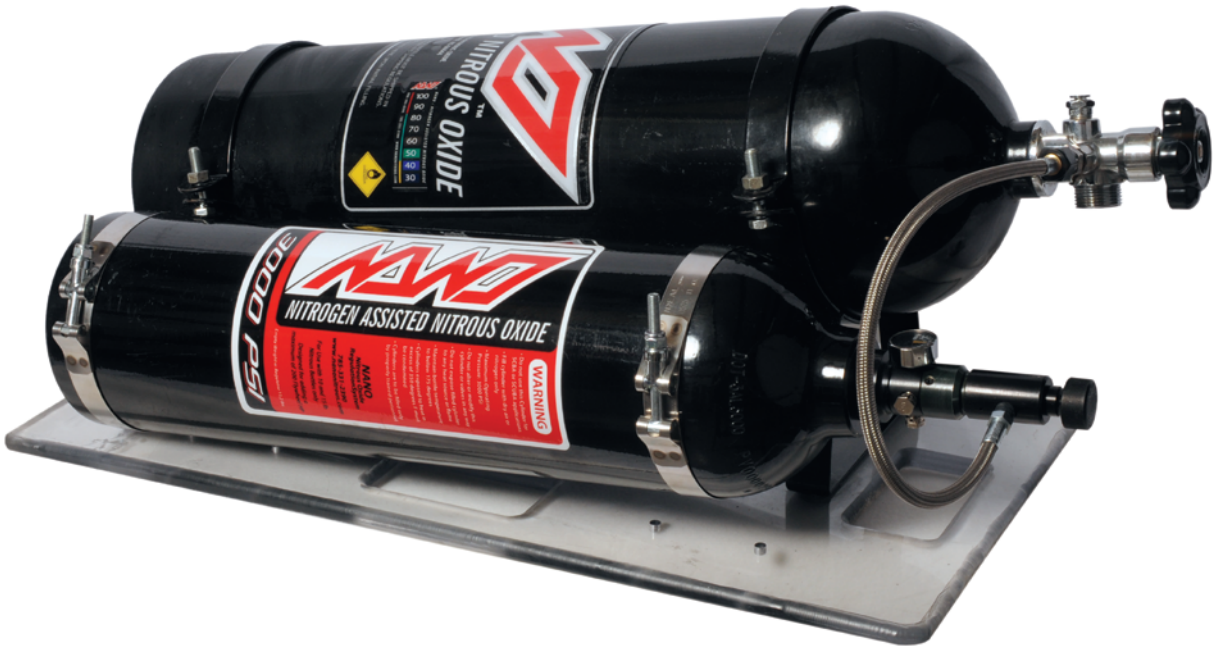
NANO Nitrous LLC assumes no responsibility for damages occurring from accident, misuse, abuse, improper installation, improper operation, lack of reasonable care or all previously stated reasons resulting from incompatibility with other manufacturers' products.

NANO Nitrous LLC assumes no responsibility or liability for damages incurred by the use of products manufactured or sold by Nitrous Oxide Systems Inc. on vehicles used for competition or racing.

NANO Nitrous LLC neither recommends nor condones the use of products manufactured or sold by NANO Nitrous LLC on vehicles, which may be driven on public roads or highways, and assumes no responsibility for damages in

WARNING

The NANO Cylinder operates at a maximum operating pressure of 4500psi of high pressure air and or nitrogen. Safety devices have been installed to protect against any failures and each Cylinder is DOT and TC Safety Certified under DOT-E 9894-4500. Follow proper procedures when handling and filling this vessel. This bottle is to be inspected and hydro-tested every three years. This bottle is unsafe if any of the glass fiber hoop wrap is damaged. If there is a question have the bottle inspected and recertified by a licensed test facility.



GETTING STARTED - ABOUT THE SYSTEM

Before proceeding check to make sure that the following items are present within your kit

NANO 10# COMPETITION KIT BILL OF MATERIALS

Qty 1 - NANO-CKV1-ASM
Check Valve - Standard Assembly. Stainless Steel

Qty 1 - BRLINE 12-41-12AN-2
NANO 12" Interconnect Line, Braided, -6AN Female JIC to 1/8" npt.

Qty 1 - NANO-UFA-On/Off
NANO Universal Fill Adapter On/Off Valve

Qty 1 - NANO PR-GAGE-FF
NANO 1500 PSI Nitrous Bottle Pressure Gage, Fluid filled.

Qty 1 - NANO4500-REGm+17-ASM
NANO 4500 Pressure Compensation Regulator
and L17 HPA Bottle assembled w/pressure gage

Qty 1 - STK-LOGO 3" x 1.24"
NANO Logo Sticker 3 x 1.25" 3-color.

Qty 1 - STK-NANO N20 BOT STK
NANO Nitrous Bottle Sticker, Vinyl, 7" x 12"

Qty 1 - NANO 10#-SHF-VLV
NANO Super Hi Flo Valve - with port modification and NANO Stickers.

Qty 2 - NANO L17/23 BR-2ASM
T-Bolt NANO Bottle Bracket Assembly for L17/L23 bottles.

Qty 1 - STK-TEMP-LABEL
Temperature Gage for NANO Nitrous bottle. Sticker style.

Background

Nitrous oxide systems can greatly increase horse power for an engine at a very small cost. On the other hand, although inexpensive, traditional nitrous systems have a reputation of being inconsistent and unpredictable A variety of techniques and tools have been used in an attempt to overcome the inconsistencies of nitrous, including bottle warmers, blow torches, and complex computer controls.

NANO'S new "Nitrous Regulators" resolve these issues for you.

Safety Features

High Pressure Burst Disk

A high pressure burst disk is provided with the system to protect against over pressurization of the NANO Bottle. Over-pressurization can result from over heating or over-filling .

Low Pressure Burst

A low pressure burst disk is provided with the system to protect against over-pressurization of the regulated side. This can occur from contaminates causing the regulator to stick open.

Nitrous Bottle Anti-Reversion Valve

A nitrous anti-reversion check valve which has been pre-installed on the included nitrous oxide bottle valve is provided with the system. This valve prevents nitrous back flow so you can disconnect the NANO system from the nitrous oxide bottle without loosing any nitrous from your nitrous bottle.

DOT / TC Certification

NANO cylinders are US DOT and Canadian TC certified. The recertification date is embedded into the NANO Cylinder label.

Quick Installation and Assembly Instructions

This kit includes all the components and accessories to install your new NANO regulation system. Some assembly is required. Check the contents of your box against the Bill of Materials (Page xx)

***WARNING*: The NANO bottle has been pre-charged with 4500 PSI high pressure air. Failure to keep the ON/OFF Valve in the full OFF position (full counter clockwise) until assembly is complete will result in loss of NANO bottle pressure.**

Installation Sequence

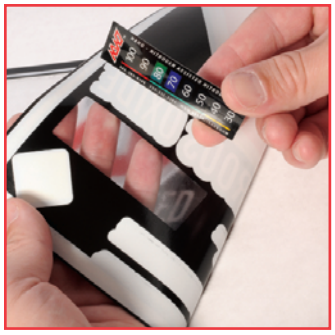
1. Install the new NANO SuperHiFlo Nitrous Valve:

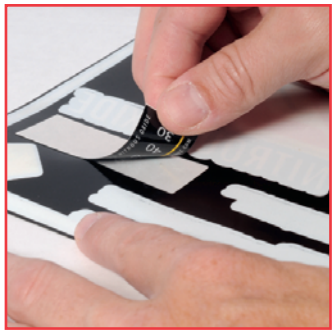
A. Positioned as shown. The NANO anti-reversion check valve has been pre-installed on the SuperHiFlo valve.

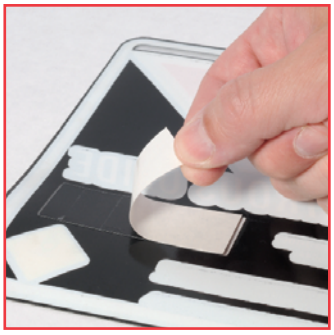
2. Install NANO nitrous bottle sticker onto nitrous bottle:

A. Place NANO temperature sticker on the back of the nitrous bottle sticker. Positioned in the clear window.

B. Position the nitrous bottle sticker as shown and apply.







3. Fill and Install the nitrous oxide bottle:

A. Fill nitrous oxide bottle

B. Check for NANO Anti-reversion Check Valve nitrous leaks. If leaks are detected to “Trouble Shooting.

C. Loosely install nitrous bottle oriented as shown.

Continued on next page

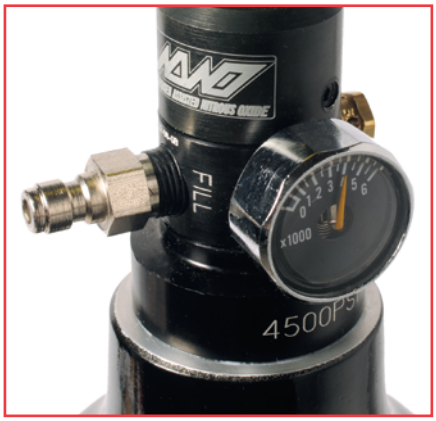
Installation Sequence Continued

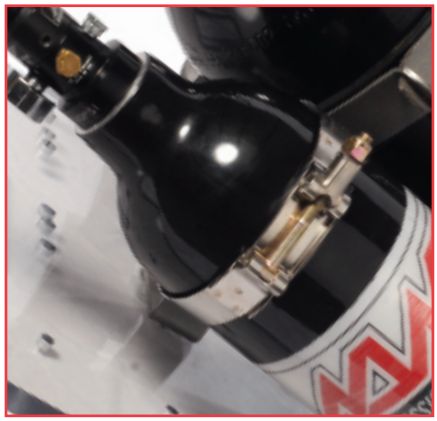
4. Install NANO Cylinder:

A. Check the NANO Cylinder's pressure gage. If the pressure is below 4000 PSI fill the NANO Cylinder to 4500 PSI.

B. Loosely install the NANO Cylinder T-bolt mounting brackets onto NANO Cylinder feet forward.

C. Choose mounting preference. (See Mounting Options XXX)





5. Install Braided Interconnect Line:

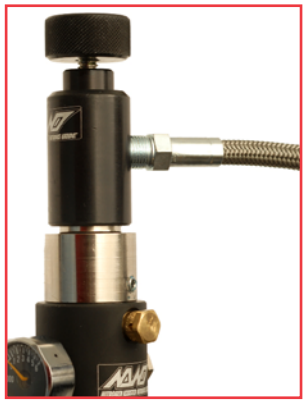
A. Attach the braided Interconnect line to the On/Off assembly.

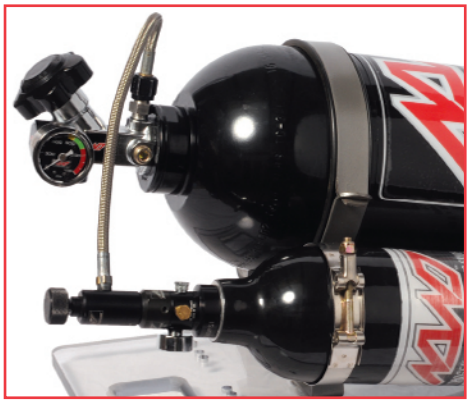
B. Attach the NANO On/Off Fill Valve on the top of the NANO Regulator/Cylinder assembly. Before attaching, be sure the knob is in the off position.

C. Orient the nitrous bottle and NANO Cylinder so the braided interconnect line can be connected as shown.

D. Attach the JIC end of the braided Interconnect line to the check valve.

E. Tighten the bottle brackets.





Quick Check The Installed NANO System

A. Check the NANO Cylinder pressure gage. It should be at or above 4100PSI. If less than 4100 psi remove the have it topped off.
B. Be sure the nitrous oxide bottle is full.
C. Turn ON the NANO System. Listen for air flow from the NANO Cylinder to the Nitrous bottle. This should take about 2 seconds.
D. With the NANO System ON the nitrous bottle pressure gage should read between 1050 and 1035PSI. If pressures are out of range go to trouble shooting (Appendix Pg xx).

Quick Tune Your NANO Nitrous

A. Re-pill your Nitrous System
B. Check and clean all nitrous filters.

Because the nitrous jetting for a NANO installation typically flows 20% more nitrous oxide than the same installation without NANO, the general rule of thumb for jetting your nitrous system after using the NANO Technology, is to reduce the nitrous horse power jetting down by 20% as a starting point. (See Pilling Charts)

NANO PROCEDURES

Filling the NANO Cylinder

A. Before filling the NANO Cylinder, disconnect the nitrous bottle from the NANO interconnect line.
B. Remove the NANO Cylinder from it's brackets
C. Remove the On/Off Assembly.
D. Attach the fill station to the NANO Cylinder using the "Fill Port Nipple" next to the NANO pressure gage.

Note: Do not remove the On/Off Assembly to fill from the top of the NANO valve as this may damage the regulator.

Filling the Nitrous Oxide Bottle

A. Disconnect the nitrous oxide bottle from the NANO System.
B. To evacuate any air/nitrogen from the nitrous oxide bottle, turn it upside down and crack the nitrous bottle valve. Let it flow until nitrous vapor starts to appear. Shut the valve off. Turn the bottle right side up.
C. Fill the nitrous oxide bottle using a standard nitrous fill station.

Note: The check valve will keep the nitrous oxide from escaping when the NANO System is disconnected from the nitrous bottle.

***WARNING*: The NANO bottle has been pre-charged with 4500 PSI high pressure air. Failure to keep the ON/OFF Valve in the full OFF position (full counter clockwise) until assembly is complete will result in loss of NANO bottle pressure.**

FULL INSTALLATION INSTRUCTIONS

Installation of NANO's Nitrous Oxide Bottle Valve

The competition kit comes with a NANO's high performance nitrous bottle valve. If the nitrous bottle you are using already has a nitrous bottle valve installed, your will remove that valve and install the NANO Super HiFlo valve in it's place.

A. Empty all nitrous from your nitrous oxide bottle.
B. Remove the old nitrous oxide valve, if any.
C. Install NANO SuperHiFlo valve.

If your current nitrous bottle has been previously filled with nitrous oxide, be sure to bleed off any nitrous oxide in your nitrous bottle by opening the nitrous bottle valve and purging the nitrous out of the bottle.

Next remove the old nitrous bottle valve from your nitrous bottle by turning it counter-clockwise. These valves are sealed to your nitrous bottle using a rubber o-ring. Breaking that seal loose is not difficult, but care should be used not to damage the valve. This can be done by striking the valve in a counter clockwise direction using a rubber mallet. Do not hit the nitrous pressure gauge, if any. Once loosened, unscrew the valve in its counter-clockwise direction. Do not use pliers or similar tools that may mar the surface of your old valve unless absolutely necessary, and do not pry against the pop off.

The technique for removing your existing valve(s) and the installation of our new valve is the same for all nitrous bottles.

First empty your nitrous bottle. If your nitrous bottle is not empty already then go to a well ventilated area. Firmly holding the bottle slowly turn the bottle valve and to purge all the nitrous from the bottle.

After removing the old valve from the bottle, install the new NANO SuperHiFlo nitrous oxide valve assembly in your nitrous oxide bottle. Check the nitrous bottle opening and make sure the surfaces are clean. The new NANO SuperHiFlo nitrous bottle valve comes with an o-ring. Be sure the o-ring is in place before inserting the valve into the nitrous oxide bottle. Hand tighten and check alignment. You may have to experiment with the threading of the valve so that when it is tight your bottle label is oriented the way you want it. Then secure the valve to the nitrous bottle by hitting it in a clockwise direction with a rubber mallet. Fill the nitrous oxide bottle with nitrous and check for nitrous leaks around the base of the valve and at the check valve on the side of the valve body.

Installation of Bottle Stickers (Optional)

A NANO Bottle Sticker and temperature gage are included in this kit. Installation is optional. To install, first peal off the bottle sticker currently on your bottle.

A. Peal off the bottle sticker currently on your nitrous bottle.
B. Apply Temperature Gage Sticker onto back side of NANO bottle Sticker.
C. Apply NANO Bottle Sticker onto your nitrous bottle

Apply Temperature Gage to Bottle Sticker

Observe the bottle sticker. You will see a clear window on the mid right portion of the bottle sticker. You will install the temperature gage to the back of the sticker as follows: Place the NANO sticker face down on a flat surface. Peal the sticker backing off and place the temperature gage sticker in the window as shown below. Now you are ready to install the bottle sticker.

Apply NANO Bottle Sticker to Nitrous Bottle

Place your nitrous bottle on a flat surface with black valve knob facing up. You will want to place the bottle sticker on the bottle so that when your bottle is in the brackets, the sticker is not covered. Place the sticker so it centers on the extension of the black valve knob.




NANO REGULATOR ASSEMBLY

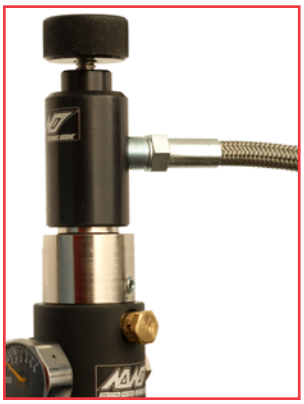
The NANO Competition kit requires minor assembly.

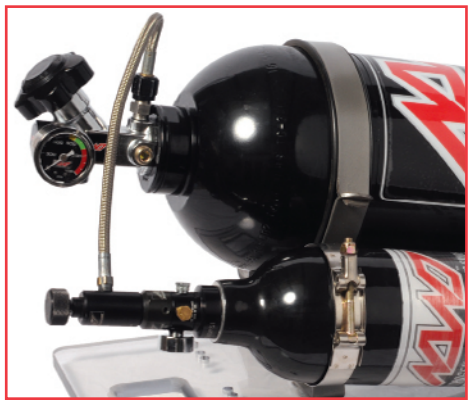
A. Attach the NANO Regulator On/Off Valve to the regulator;
B. Connect the 1/8th npt end of the braided interconnect line onto the On/Off Fill Adapter;
C. Install the NANO cylinder T-Bolt brackets onto the NANO cylinder;
D. Attach the NANO braided interconnect line to the NANO Check Valve of the nitrous oxide bottle valve; and
E. Mount the NANO cylinder.

The NANO regulator is shipped with the On/Off Valve uninstalled for safety reasons. Find the NANO Regulator's On/Off Valve assembly and gently turn the knob to the full Off position before attaching it to the NANO Regulator. Do not over tighten.

Remove the plastic cover from the NANO Regulator Assembly and attach the On/Off Valve to the Regulator/Cylinder Assembly. Screw it on clockwise and hand tighten. Do not over-tighten. ***WARNING:** Be sure the On/Off Valve Assembly is in the Off position. Failure to do so will cause the high pressure air to discharge from the NANO Regulator.*

Connect the 1/8th" npt end of the braided interconnect line into the 1/8th inch threaded port of the On/Off Valve.





Install the NANO Universal T-Bolt Bracket Assemblies onto the NANO Cylinder

The NANO cylinder can be mounted in any orientation. Use the two Universal brackets included with this kit to mount the NANO cylinder. For now, slide the two T-Bolt Bracket Assemblies onto the NANO Regulator bottle as shown below. Note that the feet of both of the brackets should face to the front of the cylinder. Adjust, but do not tighten the T-bolt brackets. You will need to properly space them and slide them into their final position later. The final orientation and placement will be determined by the method you will use to mount the NANO Cylinder/Regulator.

NANO Cylinder Mounting Choices

The four most common mounting configurations are discussed below. When making your decision on which method to use be sure you have adequate clearance to easily mount and dismount your cylinder for refilling the cylinder.

Floor Mount

The NANO cylinder location you desire. Position the T-bolt brackets on the bottle. Be sure that when you position the cylinder you have adequate clearance to conveniently slide the bottle out of the brackets for refilling. When drilling holes be sure you have adequate clearance for installing the NANO bracket bolts.

Nitrous Bottle Bracket Leg Mount

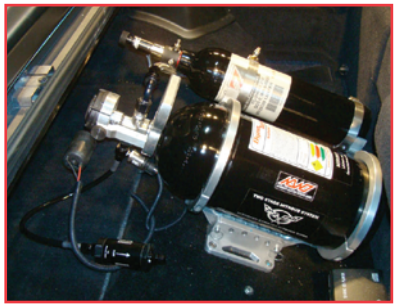
Attach the universal mounting brackets to the legs of your steel nitrous bottle brackets as shown below. With your nitrous bottle removed, position the T-bolt steel hoop brackets to fit onto the legs of your nitrous oxide bottle brackets. Remove the NANO Cylinder brackets from the cylinder. Mark their position and drill holes to mount the T-bolt brackets to the legs of you nitrous bottle bracket. This requires you drill a (1/4") hole in your steel bracket. The bolts and washers are included in your kit. Bolt the NANO Cylinder brackets onto the leg of your nitrous bottle brackets. Insert the Cylinder back into the T-bolt brackets, rotate the cylinder to easily connect the interconnect line to the nitrous oxide bottle valve and gently tighten.

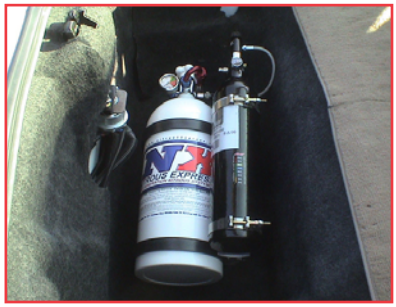
Hook Mount to Nitrous Bottle Bracket

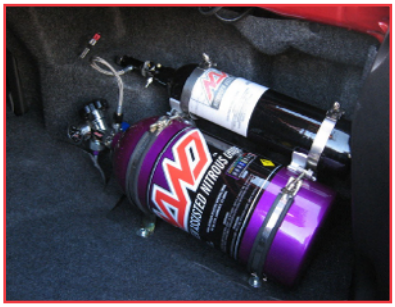
You can hook the foot of the universal bracket under the strap of your nitrous bottle bracket as illustrated below. Slide the NANO universal brackets onto the NANO cylinder first so that the foot is each bracket is facing the front of the NANO Cylinder. Leave the brackets slightly loose so that you can adjust it to slide the feet under the hoop of your nitrous oxide bottle bracket. Replace your nitrous bottle in it's brackets, leaving it adjusted loose enough to slide the NANO T-bolt bracket feet between the nitrous bottle and the bracket hoop. (See Illustration below).

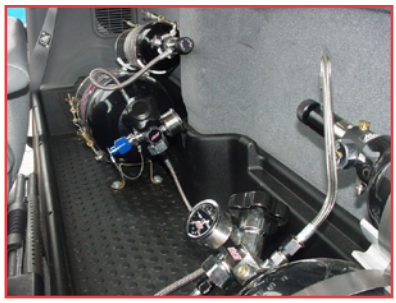
Remote Mount

The NANO bottle can be mounted as far as 36" from your nitrous bottle and oriented as you want. This kit comes standard with a 12" braided inter connect line. If you need more length, you can order 18", 24", 30" and 36" lines from NANO.









System Operation

Turning On/Off

Mounted on the top of the NANO cylinder is opened and closed by rotating the On/Off valve knob on the top of the NANO cylinder. The NANO Regulator is shipped, pre-charged with high pressure air (HPA) at between 4200 and 4500 PSI. Close the valve by gently rotating it counter clockwise. Do not over tighten.

NANO Bottle Handling and Storage

Remember this is a 4500 high pressure bottle. Handle and store the NANO bottle to protect the surface from damage and keep in a location where the bottle will not exceed 180 degrees F. If the surface of the bottle is damaged you will be refused service when you go to have you NANO bottle refilled. Do not place any stickers on this bottle or the fillers will remove the stickers so they can inspect the bottle for damage. You may store this bottle empty or full.

NANO Cylinder Maintenance

For your safety the NANO 4500PSI high pressure cylinders are to be inspected and recertified every three years. The date of original inspection is on the bottle label. The cost of recertification is minimal.

These Cylinders are hoop wrapped with glass fibers. If these fibers are damaged the bottle will not be recertified. There is a protective coating of epoxy over the glass fibers and color is added by a final paint coating. Chipping of the paint may indicate the bottle has been dropped or hit. These points should be inspected closely to assure the fibers themselves have not been damaged.

Using Dissimilar Nitrous Bottle Valves

Only use nitrous bottles that have the NANO SHF Valve and NANO Check Valve installed. This valve has been specifically designed for the NANO Competition Kit. The use of other valves may cause irregular performance and can cause engine damage.

Retune Your Car

Some running is required. Start with the base-line recommendations of your nitrous kit manufacture or a tune that has been working well for you – adjust from there. Clean all nitrous filters prior to retuning.

NANO's Base-line rule of thumb – the 20% rule. A NANO System's nitrous mass flow is about 20% more than the same system without the NANO enhancement. To compensate for this differential, we recommend you refer to your nitrous oxide manufacturer's manual and jet down the nitrous HP by 20%. This will provide you with approximately the same off-the-line HP as your standard nitrous system did, and should maintain a safe fuel/air ratio. You can refine your tune from that point using the same methodology you used to originally tune your car. The higher the horse power you're adding with nitrous the more critical retuning becomes.

The following chart shows Pilling Recommendations for the NANO Competition kit. The Nitrous Horse Power numbers are presented to show generally accepted HP in the industry. The actual power

rating is presented in Nitrous Mass Flow calculated in Lbs/sec. Compare this with the conclusions found by using the 20% rule of thumb. If the numbers are significantly different, contact NANO Tech Support at nanonitrous.com or 866-380-6266.

Filling The NANO Regulator Cylinder

Remember, for the NANO System to perform properly you need a full NANO Cylinder each time you fill your nitrous bottle. For your convenience your NANO Kit comes with the NANO Cylinder pre-charged to 4300-4500 PSI. Check the cylinder pressure gage. You may refill this bottle with either High Pressure Nitrogen (HPN) or High Pressure Air (HPA).

With the NANO bottle valve off, connect your NANO Cylinder to the fill station whip (fill line) using the paint ball male nipple on the side of the NANO ON/OFF valve. This nipple is a standard connection for the paintball industry. Note: You may also find SCUBA shops with HPA. They may not have a nipple that fits a paintball fill station. NANO provides an adapter.

Once securely connected turn the NANO On/Off knob gently to it's full On position (see On/Off markings on the knob.) Do not force this valve.

COMPETITION KIT PILLING CHART

Single Nozzle Wet Systems

NITROUS HP • lbs/sec		NITROUS OXIDE PILL SIZE	FUEL PRESSURE 7psi	38psi	60psi	ENGINE TIMING (degrees)
50hp	0.05	0.030	0.032	0.021	0.019	-1
75hp	0.06	0.040	0.040	0.026	0.023	-2
100hp	0.08	0.042	0.046	0.030	0.027	-3
125hp	0.10	0.047	0.051	0.034	0.030	-3
150hp	0.12	0.049	0.056	0.037	0.033	-4
175hp	0.15	0.056	0.061	0.040	0.035	-5
200hp	0.16	0.060	0.065	0.043	0.038	-6
225hp	0.19	0.063	0.069	0.045	0.040	-6
250hp	0.20	0.067	0.073	0.048	0.042	-7
275hp	0.22	0.070	0.076	0.050	0.044	-8
300hp	0.26	0.074	0.079	0.052	0.046	-8
325hp	0.27	0.077	0.083	0.054	0.048	-9

Single Nozzle Wet Systems

Use of these charts: "Our recommendations may vary from the nitrous kit manufacturer's recommendations. This chart has been published as a reference based on NANO's nitrous flow bench analysis. In general the NANO regulator will flow 20% more nitrous than the same kit without NANO. If our horse power nitrous pill recommendations are the same or higher than your kit manufacturer's call NANO Tech Support."

Let the cylinder fill to a pressure of 4500 PSI. Reference the pressure gage on the NANO bottle. During the fill the bottle increases in temperature. Turn the On/Off knob gently off and let the bottle cool. After the bottle cools it will settle at about 4200 PSI. To achieve a true 4500 PSI fill, after the cylinder has cooled you will need to top it off to and bring the pressure back to 4500PSI. Once completed, turn the valve off and detach it from the fill station. Your NANO Cylinder is now ready to reattach to your nitrous system. You do not need to empty the bottle before refilling. Simply top it off.

The NANO Pressure Gauge Tells you How Much Nitrous is Left in Your Nitrous Bottle?

You can tell how much nitrous oxide is left in your nitrous oxide bottle by referencing the pressure gauge on the side of your NANO bottle. Although not a direct gauge, the amount of pressure drop in this cylinder is directly proportional to the use of nitrous oxide in your nitrous oxide bottle. Use your NANO pressure gauge to approximate the amount of nitrous oxide left in your nitrous bottle. (It's accuracy assumes you properly filled your NANO Cylinder to 4500 psi and nitrous oxide bottle to its rated weight at the same time).

Here's the technique to approximate the weight of nitrous left in you nitrous bottle. When you first turn on your NANO System the NANO bottle pressure will immediately drop to about 4100 PSI as

the system stabilizes. This is the reference pressure showing when your bottle is full.

If you have a 10lb nitrous bottle, your NANO gauge will show about 1200 PSI when you have used up the available liquid nitrous (one lb left). The mid-point between these two pressures, 2650 psi, indicates you have used about ½ of the usable nitrous oxide (about 5 lbs). You can use this same technique to determine the remaining usable nitrous oxide in your nitrous bottle. For instance, if the gauge reads 3375 psi you have about 7 ½ lbs of nitrous left, and at 11925psi you have about 2 ½ lbs of usable nitrous left in your bottle.

Refilling Nitrous Oxide Bottles When Using NANO

Keep in mind that the NANO System has injected a pillow of air into your nitrous bottle. Although not critical, it is important to release this air as part of the filling procedure for your nitrous bottle. Follow this procedure:

A. Turn your nitrous bottle upside down
B. Open your nitrous valve. It will initially release the captured air and then start to release nitrous vapor. Immediately turn the nitrous bottle valve off. The trapped air has been released from the nitrous bottle.
C. Turn the nitrous bottle upright and proceed to fill the bottle with nitrous as usual.

Disconnecting and Re-connecting the NANO Cylinder Nitrous Bottle

Disconnect and reconnect the two bottles at the JIC fitting on the braded interface cable.This connector threads onto the NANO Anti Reversion Check valve (the valve that keeps nitrous oxide from escaping from the bottle when you disconnect the line). Be sure the NANO Cylinder valve is off before disconnecting the lline.

NANO Refill Solutions:

Remember that the NANO Cylinder can be filled with High Pressure Air (HPA) or High Pressure Nitrogen (HPN). Either will function equally well. You final choice will most likely be easy access and price. In general your sources will be Paint Ball Stores and Fields, SCUBA Shops, Welding Supply Companies, and Fire Equipment Service Companies. Sometimes finding a close by source to fill high pressure air or nitrogen takes some research. There is a section on our web site that will assist you in locating a supplier near you.

Some of these suppliers have the ability to supply the high pressure gasses, but may not have the proper adapters. We offer a selection of adapters at our costs for these fill facilities.

Other fill solutions are also available. You may want to rent your own high pressure tank from a local gas supplier, add our Trans-fill adapter or Fill Station System. Depending on the size of your NANO System and the pressure rating of your mother bottle you can top off your NANO System between 17 and 30 times. Call 866-380-6266 for more details. We also offer a gas powered high pressure air compressor.

ACCESSORIES

NANO SHF Check Valve • Part No. NANO-CKV01-ASM
To maintain a consistent NANO tune when using multiple nitrous bottles you need to match your nitrous oxide bottle valves. If you already have additional nitrous bottles with the NOS Super HiFlo valves. Make it compatible with NANO by simply installing our check valve.

18" Interconnect Line • Part No. BRLINE 18" STR-6F JICx1/8"M npt (blk nut)
24" Interconnect Line • Part No. BRLINE 24" STR-6F JICx1/8"M npt (blk nut)
36" Interconnect Line • Part No. BRLINE 36" STR-6F JICx1/8"M npt (blk nut)
Extra long NANO braided inter connect lines. The Competition Kit comes with a 12" interconnect line. You can purchase 18", 24", and 36" Lines.

Nitrous Bottle Temperature Label • Part No. STK-NANO N20 BOT STK
Keep an eye on your nitrous bottle temperature with our bottle temperature label. NANO is designed to operate at nitrous bottle temperatures of 80* F or below.

Deluxe Billet Aluminum Nitrous Bottle bracket • Part No. BB-PPBILLET10/15
Ready made to mount the NANO Cylinder using NANO'S universal mounting bracket. This aluminum billet bracket is the perfect choice.

APPENDIX

Trouble Shooting Check Valve Nitrous Leaks:

Check for leaks around the Check Valve Assembly: With the braided line disconnected from the check valve, spray soapy water around the check valve to determine where the leaks are occurring.

If the leak is around the base of the check valve: Tighten the check valve 1/8th of a turn and recheck for leaks. Do not over-tighten as it may restrict the check valve clearance and may distort the check valve body.

If the leak is through the check valve orifice, either there is contamination in the valve keeping it from closing completely or the check valve is defective or damaged. Damage normally occurs when the check valve fitting is over tightened.

To determine if the check valve has been damaged, rock your nitrous bottle back and forth. You should hear the check valve pin making a clicking sound. If you do not hear this sound you will need to replace this assembly. If you do hear the clicking sound, then most likely some contamination has embedded itself into the check valve seat. You must remove the check valve to clear the contamination. Use air to blow out the valve seat and also blow air around the o-ring on the check valve pin. When complete reassemble the check valve. Make sure the pin is free to move. Replace the check valve. Be careful not to over tighten. Torque specs are between 12 and 14 foot lbs.